

# Next-Generation Ultra-Compact Stowage/Lightweight Solar Array System, Phase I

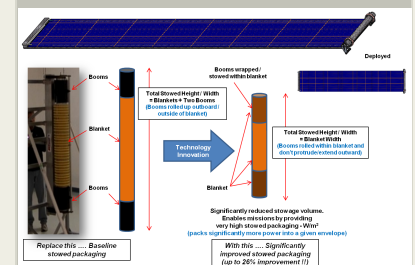
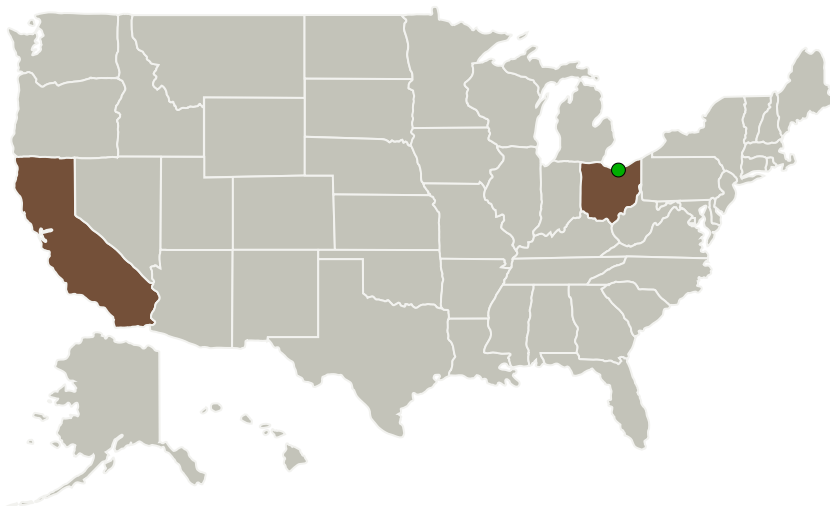
Completed Technology Project (2016 - 2016)



## Project Introduction

Deployable Space Systems, Inc. (DSS) has developed a next-generation high performance solar array system that has game-changing performance metrics in terms of extremely-high specific power and ultra-compact stowage volume. The embodiment is a tensioned membrane-blanket solar array that stows very compactly to nearly the same profile as its photovoltaic flexible blanket assembly, with no auxiliary components expanding beyond the stowed volume envelope of the stowed blanket. This innovation of extremely-compact stowed packaging allows for much higher power to be packaged into a given stowed envelop, enabling significantly higher powered NASA Science and SEP missions, other NASA missions, and other non-NASA missions. The proposed technology particularly enables missions whose stowed volumes are significantly constrained for stowage space due to launching on inexpensive smaller launch vehicles. The technology is also well suited for very large (very high power) solar array systems where stowed packaging the greatest amount of power within a given enveloped is demanded. The proposed next-generation solar array technology is reliable and leverages proven heritage components, materials, and approaches to provide very low risk implementation for the end-user. The proposed technology will produce revolutionary array-system-level performance in terms of industry leading ultra-compact stowage volume, high specific power, lightweight, reliability, modularity, adaptability, affordability, and rapid commercial infusion.

## Primary U.S. Work Locations and Key Partners



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Organizations Performing Work	Role	Type	Location
Deployable Space Systems, Inc(DSS)	Lead Organization	Industry	Goleta, California
● Glenn Research Center(GRC)	Supporting Organization	NASA Center	Cleveland, Ohio

Primary U.S. Work Locations	
California	Ohio

## Project Transitions

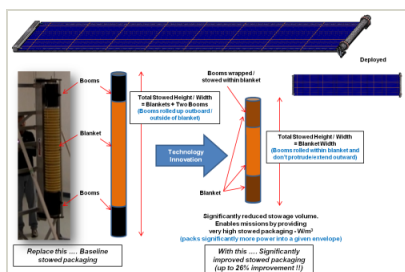
**June 2016:** Project Start

**December 2016:** Closed out

### Closeout Documentation:

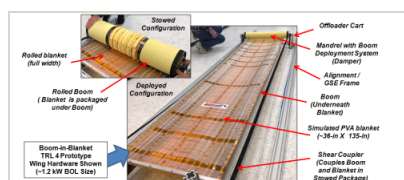
- Final Summary Chart(<https://techport.nasa.gov/file/139712>)

## Images



### Briefing Chart Image

Next-Generation Ultra-Compact Stowage/Lightweight Solar Array System, Phase I  
(<https://techport.nasa.gov/image/136278>)



### Final Summary Chart Image

Next-Generation Ultra-Compact Stowage/Lightweight Solar Array System, Phase I Project Image  
(<https://techport.nasa.gov/image/131369>)

## Organizational Responsibility

### Responsible Mission Directorate:

Space Technology Mission Directorate (STMD)

### Lead Organization:

Deployable Space Systems, Inc (DSS)

### Responsible Program:

Small Business Innovation Research/Small Business Tech Transfer

## Project Management

### Program Director:

Jason L Kessler

### Program Manager:

Carlos Torrez

### Principal Investigator:

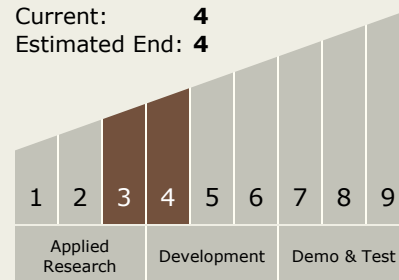
Brian R Spence

## Technology Maturity (TRL)

Start: **3**

Current: **4**

Estimated End: **4**



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## Technology Areas

### Primary:

- TX03 Aerospace Power and Energy Storage
  - └ TX03.1 Power Generation and Energy Conversion
    - └ TX03.1.1 Photovoltaic

## Target Destinations

The Sun, Earth, The Moon, Mars, Others Inside the Solar System, Outside the Solar System